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ABSTRACT

When planning the interior of a library facility, the planning team of librarian, library consultant, architect, and interior design consultant must focus attention on the basic principles of interior design and the psychological needs of the user. Colors for an interior should be selected with careful regard to space, light, and emotional and physical effects. Furnishings should be taken into account in the preliminary planning stages of the library with consideration given to the functional requirements, comfort, and efficiency. For library interiors, special areas of concern include seating, study carrels, tables, card catalog cases, circulation desks, shelving, floors, and walls. Lighting and acoustics pose special problems in libraries because of the importance of eye comfort and reduced sound. Space planning requires the determination of present and future needs for housing the collection, equipment, staff, and users over the next 20 years. Although planning for the handicapped mostly involves entrance and movement within a facility, it should begin during the early design stages to help control costs and allow for proper space allocation. (CWM)

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INTERIOR DESIGN FACTORS IN LIBRARY FACILITIES

A PROFESSIONAL PAPER

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF MASTER OF LIBRARY SCIENCE

IN THE GRADUATE SCHOOL OF THE

TEXAS WOMAN'S UNIVERSITY

SCHOOL OF

LIBRARY SCIENCE

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

BY

PATRICIA ANN JACKSON, B.S.

DENTON, TEXAS

MAY 1979

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PREFACE

The purpose of this paper is to discuss the basic principles of interior design and to relate them to library facilities. Through this paper, the author will attempt to show how interior design can influence the success of a facility and how it may affect the user. It is not an attempt to provide a step by step method approach nor is it comprehensive by any means. With the exception of two references, no attempt has been made to include standards for specific types of libraries since design requirements vary from one library facility to another. Wherever possible, recommendations for space planning and the like are based on general architectural standards.

This paper was submitted to fulfill partial requirements for the Degree of Master of Library Science in the Graduate School of the Texas Woman's University.

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CHAPTER I

INTERIOR DESIGN AND THE PLANNING PROCESS

Basic Principles of Design

The most important requirement in design is to have a good understanding of the problem at hand in terms of what is to be done and how. Since the principles of design are based on the laws of nature, people respond to design order. Through order a designer can bring together all types of objects and color, sizes and shapes, and styles and decor. He can establish a meaningful relationship which can produce a harmonious and beautiful effect.

The use of straight lines, either vertical, horizontal, or diagonal, can create a feeling of strength and severity, while curved lines give a feeling of airiness. Vertical lines are the strongest and produce a structural feeling (such as building supports). They can also help to suggest height in a room or area. Horizontal lines are not as strong as vertical lines and are basically more restful. They have the ability to relieve or decrease the effects of strong vertical lines. Horizontal lines can be

provided by tables, chairs, sofas, and windows. By using too many horizontal lines, however, a calm room may become dull. Diagonal lines seem to move in a particular direction. They are more difficult to use and may disrupt structural form and unity. If not properly controlled, diagonal lines can be annoying. The use of curved lines must be planned carefully since too many produce a restless effect. Generally, however, curved lines seem more graceful, soft, and subtle.

Scale refers to the size of an object in relation to other objects and to the human body. All design is based on the proportions of the human body.[1] Therefore, all furnishings should be scaled to people, to each other and the area in which they are used. A pleasing relationship between the elements of space and between these elements and the whole will result in good scale.

Proportion is the relationship of masses and areas of things, and is closely related to scale. Apparent dimensions in an area can be affected by elements other than actual dimensions, such as color, texture, pattern, and light. Good proportion is the result of harmonious relationships.

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[1]Julius Panero, ed., Anatomy for Interior Designers, 3rd ed. (New York: Whitney Library of Design, 1962), p. 4.

One of the most important elements of design is form. The relationship of forms in terms of function and aesthetics can more or less determine the success or failure of an interior design project.[1] The sense of sight has a dominant role in interpreting form. Since the eyes are dependent on light, however, the lighting design within an area can result in varied interpretations of the same form.

Psychology of Design

One of the key elements in architectural design is the interaction of space and personality.[2] Structural space has a profound effect on the emotional states and personalities of individuals. It also affects patterns of communication and interaction among people. Behavioral researchers are attempting to define what the proper environment for a particular area is. They can determine how people are influenced by space and how they will use it. In order to design an environment suited to its purposes, the architect should be aware of the impact of space on people and the effects it may have.

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[1] Ibid., p. 123.

[2] Clifford B. Moller, Architectural Environment and Our Mental Health (New York: Horizon Press, 1968), p. 32.

In terms of environmental behavior, there are three processes which relate to architecture. These are perception, cognition and effect, and spatial behavior. Perception is primarily concerned with formal aesthetics while cognition and effect are concerned with symbolic aesthetics. Spatial behavior focuses on the goal of design.

Personal space is an important factor to consider in library facilities. It can be defined as the distance that a living being usually fixes between himself and others in an environment. This area of space cannot be invaded by others. The marking off of space is known as territoriality. This tendency can be seen in situations such as the placement of belongings in front of empty chairs to form boundaries of sorts.

A comfortable and attractive environment can have a tremendous psychological impact upon a person. More and more today, designers and library planners are seeing the importance of relating man to his environment. This is being expressed in the form of increasing studies in the area of ergonomics or human engineering, which is the study of relationships between man and machine (or product). The design of the library facility requires that

the personalities of the staff and users and the activities of the library be taken into consideration.[1]

Planning Team

Generally, the planning team will consist of the librarian, the library consultant, the architect, and the interior design consultant, unless the architect is qualified in this area.

The chief planner on the team should be the librarian.[2] It is his responsibility to determine and express the requirements for the library facility in question. He must be very specific and concise when stating these needs and be able to justify them as required.

Many librarians will not have had experience in the planning of a library. If this is the case, it is not unusual for a consultant to be brought in. Ideally, the consultant will have knowledge in the areas of librarianship and of building and architectural concepts.

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[1]Diane Fishman and Ruth Walitt, "Seating and Area Preferences in a College Reserve Room," College and Research Libraries 33 (July 1972): 296.

[2]American Library Association, Library Administration Division, "Planning Library Buildings for Service," Proceedings of a Library Buildings and Equipment Institute Sponsored by the Section on Buildings and Equipment, Library Administration Division, ALA, July 6-8, 1961 Kent State University, Kent, Ohio, edited by Harold L. Roth (Chicago: 1964), p. 38.

Thus, with this background, communication between the architect and the librarian can be greatly improved. One of the basic duties of the consultant is to review all schematic diagrams and plans which are submitted. This can help prevent costly errors and unwise planning.

Since there are no training or licensing requirements for library consultants, it is important to conduct a thorough search for a qualified expert. This would include checking past experience and the results of any projects the consultant may have been involved in. Some states and the American Library Association furnish lists of people who have acted in the capacity of a consultant but usually these listings do not connote endorsement.

The one professional who is trained to consolidate the total design to serve the purposes outlined by the librarian is the architect.[1] The normal services expected from an architect include design development, working drawings, heating, air conditioning, plumbing, and electrical elements. If the architect does not have qualified experts within his organization who can supply these services he can engage engineers at his own expense.

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[1] American Library Association, Library Administration Division, "Library Buildings: Innovation for Changing Needs," Proceedings of the Library Buildings Institute Conducted at San Francisco, California June 22-24, 1967, edited by Alphonse F. Trezza (Chicago: 1972), p. 165.

While some architects also consider themselves qualified interior designers, others have no expertise in this area. If this is the case, it would be wise to bring in an interior design consultant. The designer may be affiliated with the architect's organization or represent an outside agency. In either case, it is important that the two be able to work well together. The interior designer is basically responsible for selection and evaluation of furniture and equipment, submitting drawings for all items which are being custom designed, space planning, and the development of a color scheme.

Architectural Program

Ideally, the interior of a facility should be planned before the exterior is even considered. In this way the resulting building will be encompassing the interior needs of the library rather than imposing requirements to achieve an architectural effect.

In order to communicate the needs of the library, it is essential to develop a written program, often referred to as the building program, architectural program, or brief. This program, which is usually written by the librarian with assistance from the architect, will consist of drawings and schematic representations of the

various needs along with a written description. Every library facility must be planned to meet its individual needs and requirements. The primary objective of the written program is to describe the function, purpose, and operation of the library.[1] The program should provide the architect with all the information he will need on the physical requirements of the facility. The description should include a detailed analysis of how the library is to be organized in terms of space requirements, the relationship of one department to another, the type of floor to be installed, the required ventilation, lighting and acoustical systems, and the furniture and equipment needs.

To facilitate planning during this stage, it is important to maintain open channels of communication between all members of the planning team. In addition to this, information for the written program can be obtained from staff members, from the public being served, and from visits to other libraries. It is important to remember, however, that what is suited to one facility may not necessarily be suited to another.

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[1]Raymond M. Holt, "Write and Use a Program: Its the Heart of the Building Project," Wisconsin Library Bulletin 71 (September-October 1975): 197.

Indoor Planning

Before the actual planning of the interior can begin, it is necessary to determine the purposes and function of the library. This would include an analysis of current services and activities as well as those to be provided in the future. These items should then be analyzed for priorities. This would help determine which will require the most attention in terms of providing adequate space and the proper environment. Once this has been done, these needs can be incorporated into the written building program. It is through this program that the architect and the interior design consultant are able to plan the interior to meet functional needs.

When planning the interior of the library facility, every possible consideration should be given to meet basic user and staff needs. One problem which must be considered is the provision of a smoking area. While many persons dislike working in an area filled with smoke, there are others who find it difficult to work for any length of time without smoking. To accommodate both preferences, many libraries are providing separate smoking areas. A point to remember, however, is that special ventilation systems may be required. Smoking areas can become stale and sour rather quickly unless a good amount of air

circulation is provided. Proper control of the atmospheric environment is important to human comfort.

To determine and meet the basic needs of the users, librarians must be aware of the objectives of their individual facilities. These needs must then be communicated to the architect. Consideration must also be given to the type and age-group of the patron. This will have a great influence on the interior design of a facility.

In order to meet the needs of staff members, planning must include a study of the work flow within the library. The planning librarian may find it useful to prepare a chart of the organization showing personnel and job relationships. By illustrating the various activities involved in major routines, it will be easier to determine requirements for the arrangement of staff and equipment.

In a study conducted by Louis Harris and Associates, Inc. for Steelcase, Inc., one of the largest manufacturers of office systems furniture in the country, one of the findings indicated that certain factors relating to interior design are important to office workers. The following information is the result of a poll involving 1,047 office workers and is based on items chosen as most important for doing a job well. On the basis of rank, number one in importance was the ability to concentrate

without noise and other distractions. Number two was heating, air conditioning, and ventilation. Third in importance was access to tools, equipment, and materials used in work; fourth was conversational privacy and fifth was lighting for work.[1]

In this study, designers and architects felt that there should be more direct contact between them and employees. Along the same lines, most office workers felt that their output would improve if they had more say in how their offices should be arranged and equipped.[2]

Abraham Maslow's theory on the hierarchy of human needs can be applied to architectural structures and environment. According to Maslow, there are five levels of human needs. They are physiological, safety and security, social, ego, and self-fulfillment. As each need is attained and satisfied, people strive to move to higher levels, the ultimate being self-fulfillment. On the first level, physiological needs are affected by light, sound, air, heat, humidity, vibration, odors, space, and movement. Safety and security needs are influenced by territoriality, orientation, privacy, positioning, crowding,

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[1]"Study Reveals More Open Plan in Office Future," Contract 21 (January 1979): 107.

[2]Ibid., p. 105.

and anticipation. The third level of need, or the social need, can be affected by density, proximity, people visibility, verbal and nonverbal interaction, social orientation, social positioning, and pathway selection. The ego can be affected through knowledge of the environment, freedom, movement, challenge, aesthetic evaluation, and control. Satisfaction of the need of self-fulfillment can be attained through growth, self-development, and self-actualization which is basically derived from identification with the environment and environmental energies.[1]

Interior Environment

The environment of the interior is influenced by many factors. These factors must be given careful consideration in order to plan an attractive, comfortable, and efficient facility. To achieve this goal the planning team should be aware of the physical and psychological needs of a person. They should keep themselves up to date in the areas of new design techniques and consult helpful publications which can provide information on products, space standards, and new laws and regulations affecting building requirements.

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[1] Archie Kaplan, "Human Needs in the Work Environment," Modern Office Procedures 21 (September 1977): 132-133.

When planning the interior environment, one must consider the area of aesthetics. Works of art and other items such as plants can enhance the beauty of an interior and also add a touch of human warmth. Accessories can be pleasing to the eye. An aesthetically well designed area is functional in that it creates an atmosphere which is suitable for all activities of the particular area.

CHAPTER II

COLOR PLANNING

Colors for an interior should be selected first for the background, then for draperies and larger furniture pieces and, finally, accents. The background would consist of the floors, walls, and ceilings. When deciding upon a color scheme, an attempt must first be made to determine what it is to accomplish. Color is no longer just a matter of art and beauty.[1]

Basically, color has three outstanding properties: hue, value, and intensity or chroma.[2] Hue refers to the name of a color. The term value is used to describe the lightness or darkness of a color, while intensity describes the strength or purity of a color.[3] Generally, a good color scheme will not contain more than three hues.[4]

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[1]Faber Birren, Functional Color (New York: The Crimson Press, 1937), p. 11.

[2]Mary Jean Alexander, Designing Interior Environment (New York: Harcourt Brace Jovanovich, Inc., 1972), p. 77.

[3]Ibid.

[4]"Color and the Use of Color by the Illumination Engineer," Illuminating Engineering 57 (December 1962): 773.

Color and Space

The apparent size and position of objects in space can be influenced by color.[1] Pale colors recede while strong or dark colors come forward. Thus, the lighter the wall and floor color, the bigger a room will look. A pattern of color which is large and strong in contrast will make a room seem smaller while a pattern which is small and gentle in contrast will make a room appear larger. Basically, light colors will make objects appear larger while dark colors will make them seem smaller.[2]

Light and Color

Color may be thought of as reflected light, thus, it should be understood that the kind of light that falls upon an object will affect its apparent color.[3] Because of this, it is important that colors be selected in the same kind of light as that in which they will be used. Under low light, only bright colors will retain their brilliance, while middle-tones, blues, deep greens, purples, and browns, may all resemble black.[4] Dark

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[1] Ibid., p. 775.

[2] Ibid.

[3] Albert O. Halse, The Use of Color in Interiors (New York: McGraw-Hill Book Co., 1968), p. 22.

[4] Birren, Functional Color, p. 70.

colors absorb more light while light colors reflect light. In areas where there are high levels of illumination, warm colors will encourage outward stimulation and extroverted activity. This may be appropriate where conversation is allowed, on the other hand, the cooler environment will draw attention inward and may be more suited for study areas.

Emotional and Physical Effects

Colors can evoke a variety of moods and reactions in people. While personal taste in color will vary with climate, nationality, age, sex, and in some cases, psychological attributes such as aggressiveness, some responses to individual colors and color combinations are basically universal. Generally, people feel that colors are either warm or cool. Warm colors are derived from the hues of yellow and yellow-red, which would include orange, tan, brown, and beige. They are also derived from red and red-purple. Cool colors, on the other hand, are derived from green, blue green, blue, and purple blue hues.[1] While red, yellow, and orange are warm and can stimulate, vitalize, and attract attention, too much can

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[1] "Color and the Use of Color," p. 774.

prove to be an irritant.[1] As a cool color, blue can reduce excitability and can promote concentration, yet too much of it may produce melancholia. Green and purple may also reduce excitability in that they act as a sedative and can have a soothing effect. Brown is usually restful and warming, however, it can be depressing if used alone and should therefore be combined with an even warmer color such as orange, yellow, or gold.[2]

In small areas, white can be appealing and vivid, but in large areas, such as on walls, it can have a sterile, cold, formal, and depressing effect. White is also undesirable in that it causes the pupil to contract, which in turn creates glare and fogging vision.[3] In an area where visual acuity is of prime importance, this can be a handicap.

For the most part, young children prefer bright, brilliant colors. They also seem to prefer warm colors to cool colors. As they grow older, however, their taste becomes more sophisticated and subtle.[4]

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[1]Stephanie Draeger, "Using Colors in the Office," The Office 85 (June 1977): 64.

[2]Halse, p. 46.

[3]Alexander, p. 82.

[4]Halse, p. 47.

CHAPTER III

FURNISHINGS AND SURROUNDINGS

All too often, the selection of furniture and equipment is left until the final stages of interior planning when most of the funds have been spent. Consequently, planners must settle on furnishings which are not always especially suited to their needs. Ideally, the furnishings should be taken into account in the preliminary planning stages of the library. In this way, selection can be geared towards providing comfort and efficient service both to the user and the staff members. For comprehensive information on library equipment and furniture, one should refer to the American Library Association Library Technology Project. In the reports, the Library Technology Project evaluates all kinds of library equipment and includes selection criteria. Certain functional requirements such as performance, appearance, flexibility and ability to fulfill needs for more than one task, and durability should determine the selection of furniture and equipment. In this selection process, the architect may be asked to assume direct control and responsibility. He

may design the furniture himself or select it from a manufacturer's stock. Or, he may rely on the manufacturer's consultant while retaining just enough control to make sure that selections are indeed suited to the library's needs. Another alternative is to have the interior designer select and sometimes design the furnishings and equipment.

Materials in Use Today

Furniture and equipment today are made from a variety of materials and are available in many different colors. Generally, materials are selected on the basis of beauty, versatility in forming and fabricating, resistance to wear, resistance to dirt, and adaptability to various finishing techniques.[1] One of the types of material in use is metal. Metal can be designed into shapes having much more structural strength than a piece of wood of the same size. With today's technological advancements, it has been possible to develop metals which can handle stress and strain when designed into furniture without having to worry about shrinkage or warping. Metal can

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[1]Hal B. Schell, ed., Reader on the Library Building (Englewood, Colorado: Microcard Editions Books, 1975), p. 302.

also be used in conjunction with other materials such as wood to provide the framing for tables, chairs, and cabinets.

Another material which is being widely used today is plastic. Besides being available in the form of furniture, plastics are also used in liquid form as finishes or laminates for furniture surfaces. An example of this would be Formica. This substance is technically referred to as a high-pressure laminate. It is very hard and very durable and does not have to be refinished.

As compared to metal and plastic, wood is the most easily "worked" of the three. The term "worked" refers to the fact that wood can be readily cut and after subjection to a steam bath, can be bent into shape. Wood is also a good insulation agent against heat and cold and is therefore warm to the touch. Although wood is subject to swelling and shrinkage with changes in atmospheric conditions, this can be controlled by proper seasoning, certain construction devices, and adequate finishing. Wood is also available in different colors and finishes which generally do not affect its natural beauty.

For the purposes of upholstery, the materials in use today are plastic, fabric, and leather. All are available in a variety of colors and textures. However,

in comparison, some plastics have the disadvantage of not being able to "breathe" and therefore may cause discomfort to the user. Fabrics, on the other hand, do not wear as well and may pose problems in maintaining cleanliness. While the use of leather may be prohibitive due to cost, it does offer a natural beauty and elegance which is difficult to match.

Seating

In general, chairs should be chosen to meet the visual and functional requirements of providing comfort and support in both reading and writing activities. Improper seating can lead to mental exhaustion, muscle fatigue, and backaches.[1] Since the chair seat supports most of the body weight, flat seats with a hard surface are uncomfortable for periods of over an hour and can cause restlessness.[2] If chairs with arms are selected, it is important that there is a minimum finger clearance of 1.5 inches to prevent possible injury when pulling the chair into position under a table.[3] It is also

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[1]"Seating--How Not to Play Musical Chairs," Administrative Management 38 (June 1977): 52.

[2]"Chair Design Requirements Start with Human Dimensions," Contract 17 (August 1975): 54.

[3]Ibid.

important that all chairs be equipped with glides that suit the surface of the floor.

Lounge chairs or informal seating should provide for a variety of postures. This type of seating would include individual chairs and sofas. Sofas are rarely seated to capacity and thus should be used sparingly. For example, a two-seater may be usurped by one reader, while a three-seater usually accommodates two people, one at each end.

Seating for children should be scaled to size and be designed for durability. In some cases, it may be more satisfactory to rely on seating which is more flexible such as bean bag chairs or cushions. These items allow for more freedom of movement, will support a variety of postures, and can be readily moved from one area to another to provide space as needed.

Study Carrels

Some library users will prefer private study areas as compared to sitting at a table with other patrons. To accommodate these patrons, the library may find it necessary to provide carrels. Study carrels may be in the form of an individual table with a baffle at the end and on the sides or in units which allow for several readers out of

sight from each other. Another type is the closed carrel, which is simply an enclosed study room. Carrels can be equipped with bookshelves, electrical outlets and jacks for ear-phones, tape-players, television receivers, and typewriters. Study carrels, especially closed carrels, should provide a relatively high degree of visual and auditory privacy.

Tables

Most libraries will find a need for at least a few flat tables. Basically, this is due to the fact that some readers prefer them and at times will need space to spread out their materials. Tables should be selected on the basis of resistance to stain and wear. The surface should not be highly polished and should be light-colored to prevent reflection of light into the eyes. Rigidity is usually satisfactory in designs which have braced the legs with side aprons. Stretchers between the bottom of the legs are generally not necessary and may interfere with sitting close to the table. They are also likely to show wear quickly because people tend to rest their feet on the stretchers.[1]

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[1] American Library Association, "Planning Library Buildings for Service," p. 15.

Tables come in several different shapes and sizes. Usually the rectangular ones offer the best work areas. Long tables can accommodate anywhere from four to twelve readers. The width should not be less than 4 feet and the lateral space allowance between readers should not be less than 3 feet.[1]

Round tables, although attractive and often used to enhance design layout, are conducive to conversation.[2] For this reason, they are not always considered a wise choice for most areas of the library. For the lounge areas, it may be appropriate to supply coffee-type tables. Consultation tables for the user of the card catalog is almost always desirable. These tables should rarely be more than 6 to 8 feet long otherwise it may create difficulties when going around them to reach trays on the other side. The width of these tables may be anywhere from 20 inches up to 3 feet.

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[1]Godfrey Thompson, Planning and Design of Library Buildings, 2d. ed. (New York: Nichols Publishing Company, 1977), p. 105.

[2]American Library Association, "Planning Library Buildings for Service," p. 36.

[3]Schell, p. 319.

Card Catalog Cases

Today, in order to obtain flexibility, card catalog cases are generally constructed in units of five or six trays wide and measure just over 33 inches to about 40 inches in width. The most common type of card catalog cases are made of wood. One reason is due to the ease of sliding wooden trays in and out without the noise which is prevalent in metal trays. Recently, however, plastic trays have been developed. These plastic trays have proven themselves to be very durable and resist breaking when dropped. The slide-out boards which are in some catalog cabinets are not recommended since these can cause congestion by blocking access to the trays above, below, and at either side.

Circulation Desks

Being one of the most utilitarian pieces of furniture in the building, circulation desks can greatly influence the feeling of the area in which they are located.[1] For this reason equal consideration and planning should be given to its appearance as well as to its function. Unless flexibility or different heights are desired, it is not necessary for the desk to be in

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[1] Ibid., p. 165.

units. To meet the specific needs of the facility, the librarian may prefer to have one custom designed rather than ordering from a manufacturer's supply house. When selecting or designing the circulation desk, careful consideration should be given to the possible automation of circulation records and its effect on the style and size of the desk.

Shelving

Only that shelving which has been designed specifically for the library use should be selected to house the library collection. It should meet all the requirements for durability, strength to support the weight load, and attractiveness.[1] Shelving can be obtained in various heights, can be freestanding or non-freestanding, and is available in wood, metal, or a combination of both. Today, however, most shelving is made of steel which is generally cheaper, stronger, and available in a variety of colors.

Freestanding shelving is that in which the uprights or columns are supported at the base so that the unit can stand alone. These stacks are not structural elements and can be easily shifted from place to place. Because of

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[1]Ellis Mount, ed., Planning the Special Library, Special Libraries Association Monograph #4 (New York: Special Libraries Association, 1972), p. 71.

this, floors throughout the library must be constructed to bear the weight of these stacks. In cases where some fastening is required or desired, floor anchoring is preferred to top bracing.[1] Although anchoring is more expensive, top bracing will not prevent the base of a stack from shifting slightly. This can create a problem if the facility is in an area where earthquakes are prevalent. Where this type of disaster does not occur, top bracing may be considered adequate for the situation.

Non-freestanding or multi-tier stacks consist of a series of vertical columns set in the base and extending to the top of the stack building. Floors are built around them and each level of stack supports the level above it. Since they are inflexible and the columns bear all the weight, floors can be relatively thin, often no more than 2, 3, or 4 inches thick.[2]

Basically, there are two types of shelving available today. These are case-type and bracket-type stacks. In making a selection between the two, consideration must be given to the particular needs of the facility. Case-type shelving refers to a design having full backs, tops,

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[1]Schell, p. 280.

[2]Keyes D. Metcalf, Planning Academic and Research Library Buildings (New York: McGraw-Hill Book Co., 1965), p. 134.

and end panels. These end panels are usually slotted to hold shelves and are designed to lock into position upon proper insertion.[1] These types of stacks are designed to accommodate shelves of only one depth in a given unit.[2]

The biggest advantage of the bracket-type shelving is its flexibility. The absence of a top permits the placement of shelving at greater intervals. Another advantage is the ease in which a shelf, either partially or fully loaded with books, can be moved from one location to another. It is possible to lift an entire shelf from the uprights and carry it to a new section of stack or it may be "walked" up and down the uprights by unhooking one end and moving it to the new position and then unhooking and moving the other.[3] One other important advantage of bracket-type shelving is the availability of special shelves and other units such as magazine display shelves, pull-out reference shelves, flush-bracket shelves for newspapers and large volumes, and even coat rack units.[4]

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[1]Schell, pp. 276-277.

[2]Ibid., p. 277.

[3]Ibid.

[4]Ibid.

While some librarians prefer the appearance of case-type shelving, it should be remembered that end panels are available for bracket-type shelving and can provide a more finished and enhanced appearance. These end panels are usually made of metal or wood. Metal end panels are available in a variety of colors while wood panels are available in a variety of different grains. Some end panels are faced with fabric-backed plastics, leather, or textiles.

There are three basic types of compact shelving available in the United States today. The first type involves swinging or hinged book cases. The second type consists of a stationary frame with sliding drawers. These drawers are available in varying sizes. The third type of compact shelving is made up of blocks of ranges or movable cases. There is only one inter-range aisle per block. These cases rest on tracks in the floor and can be activated manually or electrically. Safety devices prevent people from being sandwiched between ranges. In facilities where space is a major problem, the librarian may find that compact shelving will serve his needs beautifully.

Floors and Walls

Generally, there are three kinds of floor coverings; those made from natural materials, resilient flooring, and carpeting. Resilient floor coverings consist of smooth-surface materials that spring back after indention from pressure. Because of this characteristic, this type of flooring can offer good cushioning with a durable surface. The surface may be finished so that only minimal maintenance is required. The most common types of resilient flooring are vinyl-asbestos tile, asphalt tile, vinyl tile, and sheet vinyl.

Two types of natural materials which have been used for floors are cork and wood. Cork is comfortable and attractive and is available in tile form. Since cork is ground and mixed before it is pressed into shape, a fair amount of color variation can be expected. Cork can provide a quiet and resilient surface, however, it can be difficult and expensive to maintain. When exposed to the sun it will bleach to a whitish color. In areas where there is even the slightest moisture, cork may pull away from the concrete slabs it has been laid upon. As a

preventive measure, although an expensive one, a waterproof membrane may be used.[1]

Wood flooring, although not recommended for areas subject to moisture or surface wetness, has a number of advantages. It is relatively easy to incorporate into a design, can be finished in many ways, and the individual texture and grain can contribute much to the character of a room. Wood is also available in a variety of colors and styles (i.e., parquet).

More and more libraries today are using carpet on their floors. Its basic characteristics offer the benefits of beauty, dignity, ease of care, and, in general, can upgrade the interior environment. Psychologically, carpeting has the effect of creating user respect and positive behavior patterns.[2] Carpet also has the ability to serve as a good sound conditioner. It can eliminate floor-instigated or impact noises such as foot shuffling,

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[1] American Library Association, Library Administration Division and the American Library Trustee Association, "Libraries: Building for the Future," Proceedings of the Library Buildings Institute and the ALTA Workshop Conducted at Detroit, Michigan July 1-3, 1965, edited by Robert J. Shaw (Chicago: 1967), p. 18.

[2] American Library Association, Library Administration Division, "The Library Environment: Aspects of Interior Planning," Proceedings of the Library Equipment Institute Conducted at St. Louis, Missouri June 26-27, 1964, edited by Frazer G. Poole (Chicago: 1965), p. 57.

scraping of chairs, and dropping books. Another positive feature is that carpeting may reduce air conditioning and heating costs since it acts as a thermal insulator.[1]

For the purposes of durability, a tight, low loop pile with eight to ten rows per inch is recommended.[2] A tight weave will also make it easier to roll book trucks back and forth, especially if the wheels have been adapted to this purpose. Hard rubber or plastic wheels seem to perform the best on this type of flooring.[3]

To eliminate static electricity charges, a process in which tiny hairlike pieces of metal are blended with the carpet fibers is available. This process has also been successful in increasing soil resistance. Anti-static-charge sprays, powders, and liquids can be used for treating carpets which have not been processed with metal. However, these chemical treatments are not permanent and some may even cause carpets to soil more easily.[4]

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[1]Theodore J. Wirth, "Carpeting the Office," The Office 79 (March 1974): 45.

[2]Mount, p. 24.

[3]Metcalf, Planning Academic and Research Library Buildings, p. 232.

[4]Alexander, p. 127.

Choosing the color of a carpet should be done with care since it will bring a great deal of color into an area.[1] The color selected can either enhance the beauty of a library or detract from it. A mix of colors may be very effective in disguising dirt. Solid colors, on the other hand, especially those which are very dark or very light, will magnify soil and will require more cleaning to maintain a high level of appearance.[2]

Flexibility in carpeting is available today in the form of carpet squares or carpet tiles. This type of carpeting allows for periodic rotation to help prevent wear. It is also possible to use carpet tiles to create designs and distinguish one area of the facility from another.

The capacity of a floor covering to absorb the impact associated with walking can influence underfoot comfort. For areas in which considerable walking or standing are required, a floor covering which will reduce fatigue should be selected. For this purpose, carpet or cork floors would be the best choice.[3]

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[1]Halse, p. 83.

[2]Wirth, p. 45.

[3]Bernard Berkeley, Floors: Selection and Maintenance (Chicago: American Library Association, 1968), p. 20.

In libraries which have the traditional self-supporting steel bookstack, floor thickness does not have to exceed 4 inches. In modular buildings, however, floors may be as thick as 3 to 4 feet.[1] Since stacks may be placed almost anywhere in a modular building, the floors must be able to carry a load of about 200 pounds per square foot.[2]

To accommodate wiring and duct systems raised floors and false ceilings are being used. Loose-laid carpet tiles or other square removable panels allow easy access to under-floor telephone and electrical connections. Computer cables can also be easily installed as the need occurs.

The basic ways to cover a wall are by paint, paper, fabric, or paneling. Of these, painting is virtually the cheapest. Leather, mounted on a board and cut into 6 by 6 inch tiles, is available for use on walls.[3] When used for wall covering, leather usually has a gold-tooled design.

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[1]Ralph E. Ellsworth, Planning the College and University Library Building: A Book for Campus Planners and Architects (Boulder, Colorado: Pruett Press, Inc., 1968), p. 53.

[2]Schell, p. 34.

[3]Halse, p. 107.

Expensive paneling should be avoided in areas which are likely to be covered with books or exhibits.

CHAPTER IV

LIGHTING AND ACOUSTICS

Lighting

The basic purpose of lighting is to enable people to see their environment. Different areas of the library may present different lighting problems. The major emphasis in lighting installation should be quality. Care should be taken to avoid glare, unpleasant reflections, and shadows. Aesthetics in lighting are also important but when a choice must be made, it should be deferred to quality and function. Since lighting requirements of the future are uncertain, flexibility must be considered when planning installations. The facility should be wired so that available wattage can be increased if necessary without drastic alterations to the basic wiring system.[1]

Eye Comfort

An environment with a minimum of contrast between the brightness of the room surfaces and the lighting

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[1]Keyes D. Metcalf, Library Lighting (Washington, D.C.: Association of Research Libraries, 1970), p. 85.

fixtures should be provided for eye comfort.[1] It generally takes about twenty minutes for the eye to adapt from a high illumination level to a low one, while it only takes about five minutes to adapt from a low level of illumination to a higher one.[2] Brightness and high brilliancies will fatigue the eye. This fatigue is basically the result of over-stimulation of some of the eye-adjustment processes such as repeated constrictions and relaxations of the pupil. If brightness ratios cannot be controlled, eyes are better off in areas with less light.[3] The art of good lighting is in the proper distribution of brightness.[4]

Glare

One of the biggest problems in lighting is that of glare. Glare and uneven lighting can make reading difficult and cause discomfort. There are two kinds of glare: reflected glare and direct glare. Reflected glare is that in which there is a reflection or mirroring from overhead

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[1]Forrest Wilson, Graphic Guide to Interior Design (New York: Van Nostrand Reinhold Company, 1977), p. 56.

[2]John E. Burchard, Charles W. David, and Julian P. Boyd, Planning the University Library Building (Princeton: Princeton University Press, 1949; reprint ed., 1953), p. 87.

[3]Ibid.

[4]Ibid., p. 85.

fixtures off a reading task. Direct glare results from an intense point of light at a disturbing angle to the eye. Both conditions will reduce visual acuity. Shielded light will help prevent glare since the light comes from all directions.[1] Discomfort from glare can also be reduced if the surroundings provide comparatively little contrast with the task at hand. It is generally recommended that table tops be fairly light in color, floors not too dark, and that the walls and ceilings be on the light side also.[2]

Natural Light

Natural light is important for its psychological effect on people. Many feel more comfortable when working in natural light as opposed to artificial light. It is aesthetically pleasing but functionally leaves a lot to be desired. In natural lighting, there are enormous variations in intensity and continuous changes in the angle of the light. As a result, some readers may find it disturbing and unacceptable for most reading conditions.

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[1]Schell, p. 225.

[2]Ibid.

Natural light also imposes restrictions upon flexibility and economy in the use of floor and wall space.[1]

For the most part, natural light is admitted through windows or skylights. Generally, skylights should be avoided. The light created is usually too bright or not bright enough since it moves and changes with the sun. Hot spots under a skylight can make it uncomfortable in the summer. Even when the double dome types are used, there are generally heating and cooling problems.[2]

The amount of light which can be admitted through a window depends on its size, location, and transparency. The higher the head of the window, the deeper the penetration of light while the lower the sill, the less shadow on the floor near the window.[3] Control of direct sunlight can be obtained by the use of shades or light-breaks outside the building, special glass, or venetian blinds. All of these, however, can create problems in cleaning, maintenance, and cost.

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[1]Thompson, p. 139.

[2]Rolf Myller, The Design of the Small Public Library (New York: R. R. Bowker Co., 1966), p. 40.

[3]John Hancock Callendar, ed., Time-Saver Standards for Architectural Design Data, 5th ed. (New York: McGraw-Hill Book Co., 1974), p. 390.

Artificial Light

Artificial light is more dependable than natural light. It has three basic functions: general illumination, task lighting, and accent lighting. General illumination should create a comfortable visual environment and provide uniform levels of illumination within an area. It is softer and less direct than task lighting. Task lighting is used for areas in which light needs to be focused on small, defined spaces such as desks and study carrels. Accent lighting is basically used to focus attention upon something such as an exhibit and is most often used in a decorative capacity.

There are five basic kinds of artificial light. These are direct, indirect, direct-indirect or general diffuse, semi-direct, and semi-indirect. Direct light shines straight onto an object or space and provides the sharpest contrast between light and dark and also provides dramatic shadows. This type of lighting can also create a glare if the units are not properly placed or shielded. Indirect light is a secondary light. It is the result of light from an original source that is shone against another surface from which it is reflected. The diffuse quality of indirect light minimizes shadows and glare. Direct-indirect light utilizes both direct and indirect lighting

which is evenly distributed in all directions. With this type of lighting, shadows may be more noticeable and glare can be a problem if the fixtures are not shielded. In semi-direct systems, 60 to 90 percent of the light is aimed at the work surface with a small amount directed upward. Semi-indirect lighting aims 60 to 90 percent toward the ceiling and upper walls and uses the ceiling as the main reflective source.[1]

Two of the most commonly used sources of artificial light today are incandescent bulbs and fluorescent tubes.[2] Incandescent light is concentrated and can be easily directed to a point or area. These bulbs light instantly and are easy to maintain. However, they are more likely to produce glare unless shielded. Fluorescent light can provide good over-all illumination with a great amount of flexibility. It is possible to shift furniture and book stacks around without relocating light fixtures. Fluorescent tubes are not recommended in areas where lights are turned off and on frequently since this tends to reduce the life of the tube. On the other hand, they use less than one half the current used by incandescent

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[1] Alexander, pp. 91-92.

[2] Ibid., p. 92.

bulbs for the same intensity and thus produce less than one half the heat. One of the disadvantages of fluorescent lighting, however, is the higher cost of replacement tubes and installation.

Intensity

Opinions and recommendations on lighting intensities appear to be a controversial issue in libraries. For this reason, one may find it useful to consult the Illuminating Engineering Society publications.

Since reading and writing activities are generally performed on tables, lounge chairs, or study carrels, it is important to use lighting which is suitable for each of these. The Illuminating Engineering Society recommends that thirty footcandles of light be provided for reading printed materials and seventy footcandles for studying and note taking.[1]

For conference areas, book stacks, storage areas, microform viewing areas, toilets, and washrooms a footcandle level of thirty has been recommended. Seventy footcandles is recommended for the cataloging department, circulation desk, and audiovisual areas. One hundred

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[1]"Recommended Practice of Library Lighting," Journal of the Illuminating Engineering Society 3 (April 1974): 255.

footcandles is recommended for the card catalog and a range of 100 to 200 footcandles is recommended for most office areas.[1]

The Illuminating Engineering Society also makes a recommendation of twenty footcandles for corridors, lobbies, elevators, escalators, and stairways.

Acoustics

The acoustical environment is made up of many components such as plants, furniture barriers, ceiling material, wall finishes, and floor coverings. Actually, every element of the design and construction process has some degree of influence on the acoustical environment. Because of this, acoustical needs should be decided upon during the design process or satisfactory results may not be achieved.

People adapt themselves to the existing acoustical environment regardless of whether the conditions are good or bad. A certain amount of change, quieter or noisier, is acceptable; a radical change, however, can be physiologically and psychologically upsetting. In an office, sound levels above sixty decibels are considered noisy. An increase in this noise level can have the following

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[1] Ibid.

physiological effects: a rise in blood pressure, accelerated heart rate, increased metabolic rate, decreased activity of the digestive organs, and increased muscular tension. The psychological effects include tension, mental stress, irritability, and the inability to think and work efficiently.[1]

Sound Types

Sound can travel through and between building spaces by two methods. One is by air and is thus known as airborne sound; the second is by means of structures and is referred to as structure-borne sound. Airborne sound includes such sounds as speech, typing, and music. In its travel, it will seek out any opening. Therefore, careful consideration should be given to details which will reduce or possibly eliminate airborne sound (i.e., doors that close properly). Structure-borne sound originates in the floor. It travels through the structure of the building and then becomes airborne. An example of structure-borne sound is the noise of footsteps.[2]

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[1] Archie Kaplan, "An Ergonomic Approach to Acoustics," Modern Office Procedures 23 (March 1978): 105.

[2] Ibid., p. 108.

Acoustical Privacy

The articulation index, which is used to measure acoustical privacy, refers to the percentage of words which can be understood from a person making conversational voice effort.[1] The required level of acoustical privacy may be normal or confidential. Normal privacy requires an articulation index of 20 percent or less while confidential privacy requires 5 percent or less. In normal privacy conditions there is a degree of word privacy with control of distracting noise. Confidential privacy is the unintelligibility of conversations at neighboring work stations. There is an awareness of conversation but an inability to discern its contents. For normal privacy, a minimum of 80 square feet per work station is required and for confidential privacy, an area of 200 square feet is needed.[2]

Acoustical privacy can be achieved through proper construction, the use of masked sound, and sound absorbing materials. When an area is finished in materials which are highly sound-reflective, the sounds will persist for a long time and will seemingly come from all directions.

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[1]R. Kring Herbert, "Planning Acoustics for the Open Office," The Office 87 (March 1978): 90.

[2]Ibid.

Areas are classified according to the quality of reverberation. This will range from dead, medium-dead, medium-live, to live. An area is "live" when sound can bounce freely; it is "dead" if most sound is absorbed.[1]

Acoustical materials should be designed to collect noise and dissipate it. An effective sound-absorbing material should have a porous surface and be a minimum of one-half inch thick.[2] While carpeting is effective in absorbing impact noise, it is rather insufficient in other areas of sound absorption. It does, however, absorb ten times more sound than any other type of floor coverings.[3] In order to increase its noise absorption abilities, carpeting with heavily starched or latexed backing should be selected. Padding underneath carpets such as hair felt, foam rubber, and combinations of these also increase sound absorption. Sponge rubber, on the other hand, tends to be less sound absorptive.[4]

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[1]Kaplan, "Approach to Acoustics," p. 108.

[2]Ann M. Turley, "Acoustical Privacy for the Open Office," The Office 87 (May 1978): 49.

[3]Kaplan, "Approach to Acoustics," p. 109.

[4]Robert Propst and Michael Wodka, The Action Office Acoustic Handbook (Ann Arbor: Herman Miller Research Corp., 1975), p. 26.

Masked Sound

The goal of acoustical control is not that of total silence. An absence of noise, for most people, can be rather disturbing. Under silent conditions there is a lack of aural sensory stimulation and such deprivation can have adverse psychological effects.[1] Masked sound can provide unobjectionable noise and enhance acoustical privacy without an individual being aware of it. It raises the noise level to one which is comfortable and has the ability to cover distracting sounds. Masked sound can be anything from the noise of the air conditioning system to piped-in music.

Ceiling and Other Sound Barriers

Since the surface of the ceiling is so large, it is usually covered with acoustical material. Ceiling elements, including the light fixture, should provide sound control at the 30 degree to 60 degree angles of reflection which are typically found between work stations.[2]

The vertical surfaces or walls adjacent to work stations can be as important as the ceiling in trying to

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[1]Kaplan, "Approach to Acoustics," p. 105.

[2]Herbert, pp. 90-91.

control sound. They have the ability to interrupt the transmission of sound and can control reflections if they have been treated for sound-absorbancy. Doors can be used to either keep sound out of an area or to bring it in. With proper location, acoustical privacy can be improved.

CHAPTER V

SPACE PLANNING AND FLEXIBILITY IN DESIGN

Space Planning

Space planning requires the determination of present and future needs for housing the collection, equipment, staff, and users.[1] Generally, these space requirements should be planned on anticipated needs for at least the next twenty years.[2] Careful space planning can ensure efficient use of available space without giving a congested appearance. The use of a floor plan will make it easier to visualize arrangement and relationships of one area or department to another. An ideal library will be arranged in such a way that the user can quickly learn how to find the information or materials he needs and allows staff members to work with a minimum

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[1] One may find it useful to consult publications of the American Library Association such as "Standards for College Libraries," College and Research Libraries News 36 (October 1975).

[2] Joseph DeChiara and John Hancock Callendar, eds., Time-Saver Standards for Building Types (New York: McGraw-Hill Book Co., 1973), p. 276.

amount of backtracking. Related activities should be located together as much as possible.

Determining Space Requirements

Generally speaking, space requirements for books, readers, staff, group meetings, and mechanical operations must be provided for. These space requirements should be stated in terms of square feet. Determining space requirements for a facility may be done by means of a variety of formulas. These formulas will offer basic information to be combined with individual needs. The result should be the total space requirements for an area. The important thing to remember, however, is that no one formula is suited to all library facilities.

The amount of book shelving space which will be required basically depends on the size of the library and the community it serves. Library planners should estimate the present size of their book collection and using these figures, the growth rate should be determined and projected to accommodate the next twenty years. The amount of shelving needed should be expressed in terms of linear feet and the type of shelving required. Although there is a considerable amount of variation in the size of books, the following formulas are suggested: seven volumes per

linear foot in open reading rooms or fifty books per foot of standard height wall shelving, or one hundred books per foot of double-faced shelving. In bookstack areas, fifteen books per square foot (including aisles), or two books per cubic foot is recommended. These formulas are for full capacity shelving. Normally, however, one third of each shelf should be left for expansion purposes.[1]

To determine seating requirements, local needs should be analyzed carefully. A point to consider while studying this is how peak periods can effect the amount of space required. It is generally not economical to provide reading rooms which will accommodate large crowds since peak periods occur irregularly. The following formulas are recommended for determining seating requirements: if the future population is estimated to be less than 10,000 allow ten seats per thousand; if the population is more than 10,000 but less than 35,000 allow five seats per thousand; for populations between 35,000 and 100,000, three seats per thousand should be allowed; for that between 100,000 and 500,000, an allowance of 1¼ seat per thousand should be made; and finally for a population of 500,000 and up, one seat per thousand should be allowed.[2]

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[1] Ibid.

[2] Ibid., pp. 277-278.

Staff requirements for space should anticipate growth for a twenty year period and should be based on the nature of the library's services. The American Library Association recommends that space for staff should be based on one fulltime or equivalent staff member for each group of 2,500 people to be serviced. This is a minimum standard and can be adjusted as needed. The figures include pages but not maintenance personnel. It is recommended that space requirements for staff be calculated on the basis of 100 square feet per staff member. This includes space for a desk, chair, books, and equipment.[1]

The provision of meeting or conference rooms may be required for some libraries. If so, flexibility should be stressed to provide for efficient maximum use of space. In this type of area, it is recommended that 7 to 10 square feet per seat be allowed.[2]

Mechanical operations include such items as toilets, stairways, halls, elevators and lifts, air ducts,

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[1] American Library Association, Subcommittee on Standards in Small Libraries, Public Library Association, Interim Standards for Small Public Libraries: Guidelines Toward Achieving the Goals of Public Library Service, 1962, p. 43, quoted in Joseph DeChiara and John Hancock Callendar, eds., Time-Saver Standards for Building Types (New York: McGraw-Hill Book Co., 1973), p. 278.

[2] DeChiara and Callendar, p. 278.

heating and air conditioning equipment, and closets. To determine space requirements for these areas it is recommended that the best technical advice be secured. Generally, it is suggested that an allowance of 20 percent be provided for these operations.[1]

Accommodating Traffic Flow

In order to determine successful space relationships, the flow of traffic from the point of entrance into the facility to the time of departure must be carefully studied. Aside from the traditional staircase, consideration must be given to the possibilities of installing escalators or elevators to accommodate patrons and staff members.

In designing the staircase, careful attention should be given to the dimensions of the risers. Generally, the most acceptable height for risers is a maximum of 7½ inches, while risers of less than 6 inches should be avoided. The following formula is often used in determining acceptable standards for stairs: the product of the riser and the tread should be in the range of 70 to 75; the risers plus the tread should be approximately

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[1] Ibid., pp. 278-279.

17 to 17½ inches; twice the riser should be between 20 and 25 inches.[1]

Escalators can handle a fairly large volume of traffic while using relatively little power. Careful thought should be given to their location so as not to obstruct traffic. It is also important that escalators be carefully installed. They should be tailor-made for the facility if they are not to be unduly noisy.[2]

The number and size of elevators needed within any one facility will depend upon the volume of traffic, the waiting period which will be tolerated, the capacity of a cab, and its speed. Basically, a small library will be able to function with an elevator large enough to accommodate a booktruck and several people. A larger library on the other hand may find that not only will they have a need for a public elevator, but that a freight elevator may be required also.

When planning space requirements for a facility, not only should the above recommendations be considered

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[1]Frederick S. Merritt, ed., Building Construction Handbook, 1958, as quoted by Keyes D. Metcalf, "Traffic Patterns," in Hal B. Schell, Reader on the Library Building (Englewood, Colorado: Microcard Editions Books, 1975), p. 173.

[2]Schell, p. 174.

but also those standards which allow for access by the handicapped. Planners may find it necessary to consult various publications such as Design for the Physically Handicapped published by the Office of the Chief of Engineers, U.S. Department of the Army. Publications of this type state specific requirements and guidelines in order to provide maximum accessibility to the handicapped.

Flexibility in Design

To keep up with the quick rate of development and new technology in our society today, it is important that libraries be designed to accommodate these changes. Flexibility is an important element in library design and should not be handicapped by permanent installations. The actual structure or area itself, mechanical facilities, lighting, and furnishings should all be able to lend themselves to modifications without major difficulty or expense. Without these capabilities, libraries may find themselves facing obsolescense.[1]

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[1]John R. Culler, "Libraries are Changing! New Times, New Ideas, New Purposes, Call for New Concepts in Design . . .," Library News Bulletin 36 (January 1969): 39.

Modular versus Fixed-Function Facilities

Planning for a fixed-function facility is more difficult than planning for a modular building. A fixed-function facility cannot be adapted to a variety of activities and services. Instead, planning must be very detailed and precise in order to define the spaces which are to be provided not only for the present, but for the life of the facility. Modular buildings, however, are designed on the principle of flexibility. A modular library is one in which most of the floor space can be used in a number of different ways. This can range from providing rooms or offices for patron and staff use to the placement of free-standing bookstacks. In the modular system, a building is supported by columns placed at regular intervals. Other than the outside walls and the columns just mentioned, nothing in the library is weight-bearing. Everything within the structure should be potentially movable with the exception of the core elements (stairs, restrooms, etc.). Movable wall panels or partitions should be considered for those areas of the library which may need to change their space requirements in the future.

Office Landscaping

The concept of office landscaping or open office planning was first introduced to the United States in 1964 by the Quickborner Team from Germany. As a management consulting firm, it studied the physical plans of offices and their influence on the effectiveness of office work. The Quickborner Team's theory was that a carefully arranged open office minimizes time lost in transporting people and work throughout an office. They found that an absence of walls facilitates communication between workers.[1]

One of the most advantageous features of this type of planning is its flexibility. The use of modular units for work stations provides for maximum efficiency as related to work and space planning. When properly designed, work stations can be tailored to the needs of the individual and the task. Because the problem of space is present in almost all libraries, office landscaping may provide a partial solution. The ability to adjust and move work stations as needed can provide for space requirements of the future.

Since office landscaping is based on the principle of flexibility, load-bearing walls are kept at a minimum.

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[1]Philip Howard, "Office Landscaping Revisited," Design and Environment 3 (Fall 1972): 42.

Instead, to provide privacy and reduce visual and acoustic disturbances for individual work stations, movable partitions or screens are used. When choosing furniture for the open plan office area, the one basic point to keep in mind is that standard, mass-produced pieces should be purchased. This makes it easier to obtain replacements or additional parts. Another point to keep in mind is that building block systems are useful since units can be joined together or taken apart as needed. Other factors include selection based on comfort, durability, the ability of units to lock together and unlock easily, the acoustical control qualities of items such as partitions, and overall attractiveness.

The ability to move and rearrange office furniture and equipment without the major expenses encountered in traditional building plans allows for the flexibility needed today. Some pieces of furniture are wired for electricity which is also an advantage when flexibility is a major consideration. Through office landscaping, a pleasant work environment and maximum efficient use of space can be provided. When properly designed, office landscaping is economical as well as efficient.

CHAPTER VI

DESIGNING FOR THE HANDICAPPED

The term handicapped may cover those who are confined to wheelchairs, walk with difficulty and require braces or crutches, are blind or see with difficulty, are deaf or have poor hearing, are badly coordinated or subject to palsy, and those who are not well due to age. One out of every seven people is physically handicapped in one way or another.[1] To provide architectural accessibility to these people, Public Law 90-480 states that most federally funded facilities shall be designed so that they are usable by the handicapped.[2] Designing for the physically handicapped will also assist the very young and the elderly as well as those who are under temporary physical restrictions such as those caused by pregnancy or injury.

When designing for the handicapped, one of the basic requirements which must be considered is provision

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[1]Callendar, p. 1032.

[2]U.S. Department of the Army, Office of the Chief of Engineers, Design for the Physically Handicapped, EM 1110-1-103 (15 October 1976), p. 1-1.

for entrance and movement within the facility. This would involve designing stairways, elevators, and ramps to provide maximum accessibility and safety. Entrances should be designed so that at least one is usable by persons in wheelchairs.[1] If turnstiles are used, an alternate means of entering the facility should be provided in the same area.[2] A minimum opening width of 34 inches is needed for a single door, or, if double doors are provided, at least one of these doors should meet these requirements.[3] At least one door of the facility should be power operated. Otherwise, lever-type doorknobs, push-plate releases, and panic (crash) cars should be installed as opposed to other types of door hardware and then should be centered at 36 inches above floor level.[4] For doors with protruding pull handles, vertical ones are preferred to horizontal pull bars and should be centered 42 inches above the floor level.[5]

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[1]Stephen R. Cotler and Alfred H. DeGraff, Architectural Accessibility for the Disabled of College Campuses (Albany: State University Fund, October 1976), p. 29.

[2]Ibid., p. 101.

[3]Ibid., p. 31.

[4]Ibid.

[5]Ibid.

Providing appropriate sinage is important to those with hearing impairments. When using the Symbol of Access, only black or dark blue should be used as the background for the white figure. All lettering which accompanies these graphic symbols should be placed on separate signs.[1]

For the blind or visually handicapped, raised letters or numerals rather than braille are required. It has been found that the totally blind are able to recognize this form of identification as well as braille whereas the partially sighted usually do not know braille.[2] These raised letters or numbers should be placed 4 feet 6 inches to 5 feet 6 inches high and to the side of a door.[3] Other forms of identification include audible warning signals and knurled hardware for doors.

Passage lanes or aisles between bookstacks and files should be at least 42 inches wide, while a 60 inch square turn-a-round space should be provided at the ends of aisles. Sixty inches of space should also be provided for major passage ways.[4]

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[1] Ibid., p. 83.

[2] Ibid., p. 36.

[3] Callendar, p. 1035.

[4] U.S. Department of the Army, p. 5-17.

When carpeting is used on the floor, it should be of a tightly woven, loop pile. Carpets with a sculptured surface should be avoided. For areas which are not carpeted, the surface should provide a firm, even, and nonslip surface. It should not be highly polished or non-porous to the degree that it becomes extremely slippery and dangerous when wet.[1]

To meet the needs of the handicapped, planning should begin during the early stages of the design process. This will help control costs and allow for proper space allocation. Careful planning can result in an area which is compact, efficient, and functional to all involved.[2]

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[1]Cotler and DeGraff, p. 75.

[2]U.S. Department of the Army, p. 1-3.

CHAPTER VII

CONCLUSION

The interior of a facility is not a matter which should be considered lightly. The interior serves as the introduction between people and the facility. In this way it is responsible for first impressions, both favorable and unfavorable. If properly planned and designed, the interior can create the desired environment and provide an area which is pleasant and appropriate to the activities which take place in a library facility. When all the planning and purchasing are done, the result should be a beautiful, functional, and comfortable facility which is easy to operate and easy to use.

A harmonious relationship among the members of the planning team is essential in order to achieve a successful design project. The architect and the librarian should have respect for one another and be able to collaborate, not compete. Neither individual should try to dominate or force their convictions upon the other.

When planning the library facility, the entire structure should be considered as one whole. Thus, the

exterior and the interior of the building should not clash. Instead, they should enhance the beauty of one another. Well planned facilities are both aesthetically and functionally pleasing. They are the result of architects, librarians, consultants, and interior designers who work closely together and understand the needs of each particular library. From this understanding and communication between members of the planning team comes the ability to incorporate new design ideas and innovations which are particularly suited to the facility in question. Library interior design has undergone a great deal of change in the past years, however, there is room for still more change and new ideas. Some of these changes can be brought about through research of library and user needs as well as gaining general acceptance for the idea that a functional interior can be comfortable and pleasing to the eye and will generally invite more use.

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